



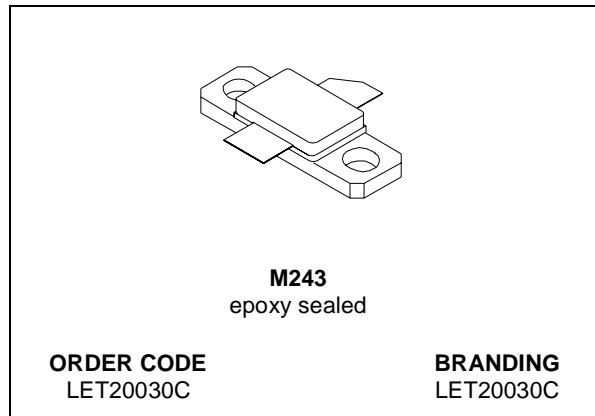
# LET20030C

## RF POWER TRANSISTORS *Ldmos Enhanced Technology*

TARGET DATA

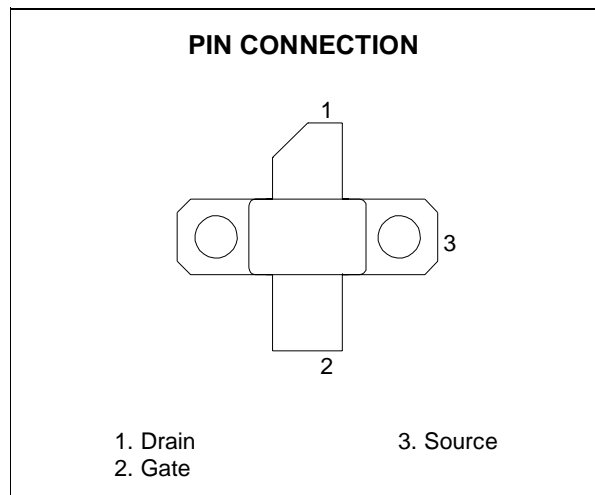
Designed for GSM / EDGE / IS-97 applications

- IS-97 CDMA PERFORMANCES  
 $P_{OUT} = 4.5\text{ W}$   
EFF. = 17 %
- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- $P_{OUT} = 30\text{ W}$  with 11 dB gain @ 2000 MHz
- ESD PROTECTION



### DESCRIPTION

The LET20030C is a common source N-Channel enhancement-mode lateral Field-Effect RF power transistor designed for broadband commercial and industrial applications at frequencies up to 2.0 GHz. The LET20030C is designed for high gain and broadband performance operating in common source mode at 26 V. It is ideal for base station applications requiring high linearity.



### ABSOLUTE MAXIMUM RATINGS ( $T_{CASE} = 25\text{ }^{\circ}\text{C}$ )

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-Source Voltage	65	V
$V_{DGR}$	Drain-Gate Voltage ( $R_{GS} = 1\text{ M}\Omega$ )	65	V
$V_{GS}$	Gate-Source Voltage	-0.5 to +15	V
$I_D$	Drain Current	4	A
$P_{DISS}$	Power Dissipation (@ $T_c = 70\text{ }^{\circ}\text{C}$ )	65	W
$T_j$	Max. Operating Junction Temperature	200	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	-65 to +200	$^{\circ}\text{C}$

### THERMAL DATA ( $T_{CASE} = 70\text{ }^{\circ}\text{C}$ )

$R_{th(j-c)}$	Junction -Case Thermal Resistance	2.0	$^{\circ}\text{C/W}$
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## LET20030C

### ELECTRICAL SPECIFICATION (T<sub>CASE</sub> = 25 °C)

#### STATIC

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0 V	I <sub>DS</sub> = 1 mA	65			V
I <sub>DSS</sub>	V <sub>GS</sub> = 0 V	V <sub>DS</sub> = 26 V			1	μA
I <sub>GSS</sub>	V <sub>GS</sub> = 5 V	V <sub>DS</sub> = 0 V			1	μA
V <sub>GS(Q)</sub>	V <sub>DS</sub> = 26 V	I <sub>D</sub> = TBD	2.5		5.0	V
V <sub>DS(ON)</sub>	V <sub>GS</sub> = 10 V	I <sub>D</sub> = 1 A		TBD		V
G <sub>FS</sub>	V <sub>DS</sub> = 10 V	I <sub>D</sub> = 1 A		TBD		mho
C <sub>ISS</sub>	V <sub>GS</sub> = 0 V	V <sub>DS</sub> = 26 V		TBD		pF
C <sub>OSS</sub>	V <sub>GS</sub> = 0 V	V <sub>DS</sub> = 26 V		TBD		pF
C <sub>RSS</sub>	V <sub>GS</sub> = 0 V	V <sub>DS</sub> = 26 V		TBD		pF

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
<b>DYNAMIC (f = 2000 MHz)</b>						
P <sub>1dB</sub>	V <sub>DD</sub> = 26 V	I <sub>DQ</sub> = 200 mA	30			W
G <sub>P</sub>	V <sub>DD</sub> = 26 V	I <sub>DQ</sub> = 200 mA P <sub>OUT</sub> = 30 W		11		dB
η <sub>D</sub>	V <sub>DD</sub> = 26 V	I <sub>DQ</sub> = 200 mA P <sub>OUT</sub> = 30 W		52		%
IMD <sub>3</sub> <sup>(1)</sup>	V <sub>DD</sub> = 26 V	I <sub>DQ</sub> = 200 mA P <sub>OUT</sub> = 30 W PEP		-31	-28	dBc
Load mismatch	V <sub>DD</sub> = 26 V	I <sub>DQ</sub> = 200 mA P <sub>OUT</sub> = 30 W ALL PHASE ANGLES	10:1			VSWR
<b>DYNAMIC (f = 1930 - 1990 MHz)</b>						
P <sub>OUT</sub> <sup>(2)</sup>	V <sub>DD</sub> = 26 V	I <sub>DQ</sub> = TBD	25	30		W
G <sub>P</sub>	V <sub>DD</sub> = 26 V	I <sub>DQ</sub> = TBD P <sub>OUT</sub> = 30 W	11			dB
η <sub>D</sub> <sup>(2)</sup>	V <sub>DD</sub> = 26 V	I <sub>DQ</sub> = TBD	40	45		%
P <sub>out(CDMA)</sub> <sup>(3)</sup>	885 KHz < -47 dBc 1.25 MHz < -55 dBc 2.25 MHz < -55 dBc			4.5		W
η <sub>D(CDMA)</sub> <sup>(3)</sup>	885 KHz < -47 dBc 1.25 MHz < -55 dBc 2.25 MHz < -55 dBc			17		%

(1) f<sub>1</sub> = 2000 MHz, f<sub>2</sub> = 2000.1 MHz

(2) 1 dB Compression point

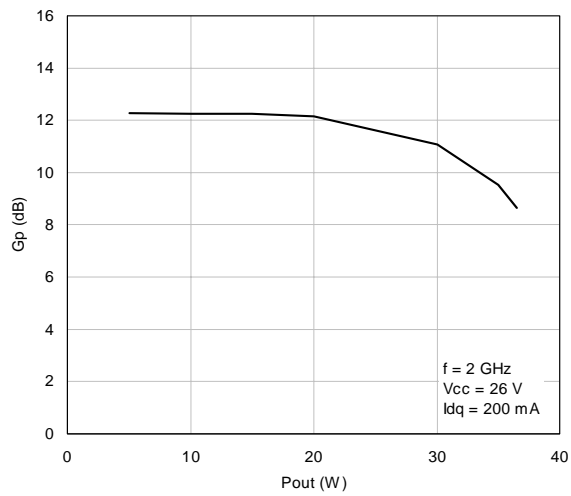
(3) IS-97 CDMA Pilot, Sync, Paging, Traffic, Codes 8 Thru 13

#### ESD PROTECTION CHARACTERISTICS

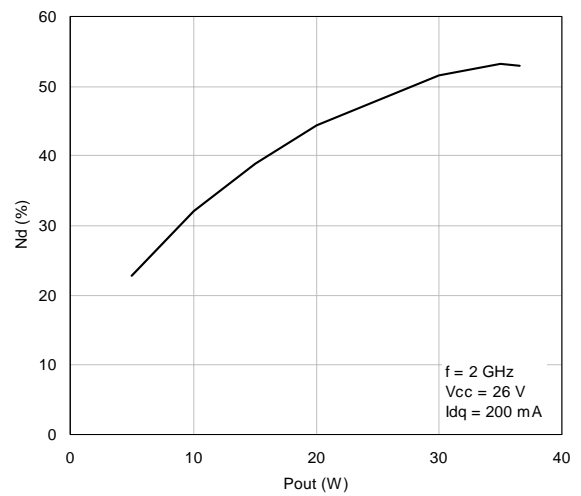
Test Conditions	Class
Human Body Model	2
Machine Model	M3

TYPICAL PERFORMANCE

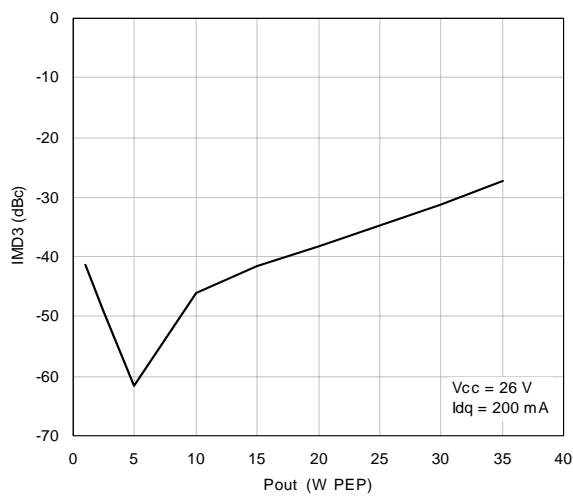
Power Gain vs. Output Power



Efficiency vs. Output Power

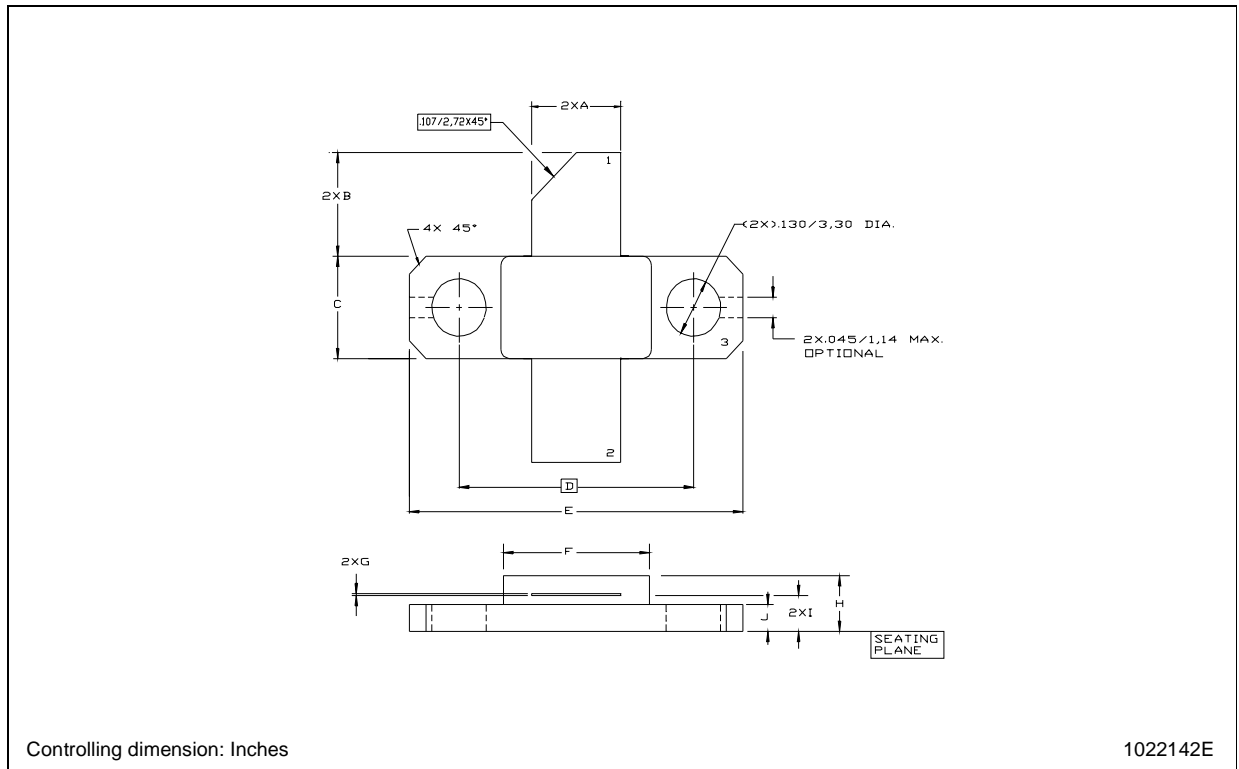


IMD3 vs. Output Power



M243 (.230 x .360 2L N/HERM W/FLG) MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A	5.21		5.72	0.205		0.225
B	5.46		6.48	0.215		0.255
C	5.59		6.10	0.220		0.240
D		14.27			0.562	
E	20.07		20.57	0.790		0.810
F	8.89		9.40	0.350		0.370
G	0.10		0.15	0.004		0.006
H	3.18		4.45	0.125		0.175
I	1.83		2.24	0.072		0.088
J	1.27		1.78	0.050		0.070



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